

**REMARKS / ARGUMENTS**

The examiner previously entered rejection of claims 1-26 on January 5, 2004. This request for continued examination is being filed in order that amendments responsive to those rejections can be properly entered and considered.

A substitute specification is attached hereto incorporating claim amendments and corrections to the specification. Corrections to the specification are limited to correcting "isotactic polypropylene" to "impact polypropylene" and the previously entered amendment correcting the identification of PX-338 in Table V. The claims of the substitute specification are as listed in the above claim listing.

In the original specification, the term "isotactic polypropylene" was inadvertently used instead of the proper term "impact polypropylene." This confusion was due to the attorney for applicant interpreting the "i" of material "Ti4007G" to signify "isotactic." In fact "Ti4007G" is an impact polypropylene with the "i" signifying "impact." Attached to this RCE is a data sheet clearly identifying Ti4007G as an impact polypropylene. As Ti4007G is both the material of the original patent application and the current RCE, no new matter is added by virtue of this correction.

An additional issue raised by the examiner was an indication for a species restriction to the claims. The amended claims are directed to the

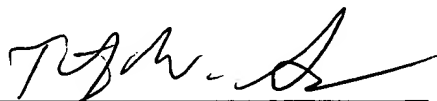
Appl. No. 09/825,585  
Response dated July 6, 2004  
Request for Continued Examination

species having copolymers of ethylene as the impact modifiers. Engage™ polymers 8200 and 8180 along with Union Carbide DFDB 1085 and DFDB 1088 are within this species (see Table IV of the Specification). In particular the Engage™ products are listed as ethylene-octene copolymers by their manufacturer. Similarly, DFDB1085 and DFDB 1088 are listed as ethylene-butene copolymers. Respective datasheets for these copolymers are attached to this request for continued examination.

The examiner entered additional rejections under 35 U.S.C. 102/103 relying upon reference U.S. Patent 5,852,115 to Young (Young '115). Claim amendments respectfully traverse these rejections. For example, the tables and examples of Young '115 do not incorporate the use of copolymers of ethylene as impact modifiers in the resulting compositions.

Should any further questions arise concerning this application or in the event the application is no longer in condition for allowance, applicant respectfully requests an office interview. Attorney for the applicant may be reached at the number listed below.

Respectfully Submitted,  
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By 

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# Polypropylene

## TI-4007-G

### IMPACT COPOLYMER

- Extra High Izod Impact, Superior Low Temperature Drop Impact
- Suggested Uses Include Profiles, Tubing, Squeeze Bottles
- UL Temperature Index of 100°C

TECHNICAL DATA			
Property	Unit	Typical Value (1)	ASTM Method
Nominal Melt Flow (2)	g/10 min	0.7	D1238
Density (3)	g/cm <sup>3</sup>	0.901	D792
Tensile Strength at Yield (4)	psi MPa	4,200 28	D638
Elongation at Yield (4)	%	12.5	D638
Flexural Modulus	psi MPa	175,000 1,206	D790A
Izod Impact (5) notched at 23 °C (73 °F)	ft-lb/in J/m	Non-Break	D256
Rockwell Hardness	R Scale	78	D785
Instrumented Drop Impact (6) at -29 °C (-20 °F)	ft-lb J	22 29	Sunoco Chemicals
Melting Point (7)	°F °C	324 162	Sunoco Chemicals

- (1) Injection molded specimens where applicable
- (2) 230 °C / 2.16 kg
- (3) at 23 °C (73 °F)
- (4) Type 1 specimen at 50 mm/min (2 in/min) crosshead speed
- (5) 3.2 mm (1/8-inch) bar
- (6) Maximum energy on a 3.2 mm (1/8-inch) thick plaque
- (7) by DSC

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FOR CAUTIONS AND OTHER INFORMATION RELATING TO HANDLING OF AND EXPOSURE TO THIS PRODUCT PLEASE SEE MATERIAL SAFETY DATA SHEET CODE NUMBER C4004 PUBLISHED BY SUNOCO CHEMICALS

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## Product Information

Rev. 4, August 2003

### Engage® 8180

#### Product Description

Engage® 8180 polyolefin elastomer is a lower density, high performance ethylene-octene copolymer that has excellent flow characteristics and provides superb impact properties in blends with polypropylene (PP) and polyethylene (PE). It is widely used in TPO applications where excellent flow temperature impact properties are desired. Engage® 8180 also provides high filler loading capability and excellent electrical properties. When cross-linked by peroxide, silane, or irradiation, it gives exceptional heat aging, compression set, and weather resistance properties.

The product form is free-flowing pellets. For product handling information, consult the material safety data sheet (MSDS) for this product.

For FDA or EU food contact compliances of this product, consult the appropriate DuPont Dow Elastomers bulletin on food contact compliance. These can be found at [www.dupont-dow.com](http://www.dupont-dow.com) or through a DuPont Dow Elastomers Customer Service Representative.

Engage® has a halogen-free chemical structure. Products made with Engage® can bear this recycling material code.



The typical properties below are presented as representative of this product based on typical manufacturing experience. These data are provided for information only and are not certified by DuPont Dow Elastomers as a sales specification or product release criteria.

This product is packaged in 20 kg (44.1 lb) bags or 590 kg (1,300 lb) cartons (US material), or in 500 kg (1,102 lb) cartons (European material).

Typical Physical Properties		Test Methods
Comonomer Content, wt%	42	Dow Method ( <sup>13</sup> C NMR/FTIR)
Melt Index, 190°C/2.16 kg, dg/min	0.5	ASTM D-1238
Density, g/cm <sup>3</sup>	0.863	ASTM D-792
Mooney Viscosity, ML 1 + 4 at 121°C	35	ASTM D-1646
Typical Molded Properties <sup>1</sup>		
Ultimate Tensile Strength, MPa	8.8	ASTM D-638, 508 mm/min
Tensile Yield, MPa	1.7	ASTM D-638, 508 mm/min
Ultimate Tensile Elongation, %	860	ASTM D-638, 508 mm/min
Hardness, Shore A/D	66/16	ASTM D-2240
Flexural Modulus, 2% Secant, MPa	8.3	ASTM D-790
Brittleness Temperature, °C	< -76	ASTM D-746
Typical Thermal Properties		
Vicat Softening Point, °C	38	ASTM D-1525
DSC Melting Point, 10°C/min rate, °C	49	DuPont Dow Method

<sup>1</sup>Compression molded

## Product Information

Rev. 5, January 2004



## Engage® 8200 and Engage® 8207

### Product Description

Engage® 8200 and Engage® 8207 polyolefin elastomers are ethylene-octene copolymers that have excellent flow characteristics and performs well in a wide range of general purpose thermoplastic elastomer applications. They provide superb impact properties in blends with polypropylene (PP) and polyethylene (PE), especially in applications requiring slightly higher melt flow. Engage® 8200 and Engage® 8207 also provide high filler loading capability. They have excellent electrical properties, and when cross-linked give exceptional heat aging, compression set, and weather resistance properties.

Engage® 8207 is Engage® 8200 with a nominal loose talc coating. The talc is untreated, with a 1 micron particle size. The product form is free-flowing pellets. For product handling information, consult the material safety data sheet (MSDS) for this product.

For FDA or EU food contact compliances of this product, consult the appropriate DuPont Dow Elastomers bulletin on food contact compliance. These can be found at [www.dupont-dow.com](http://www.dupont-dow.com) or through a DuPont Dow Elastomers Customer Service Representative.

Engage® has a halogen-free chemical structure. Products made with Engage® can bear this recycling material code.



The typical properties below are presented as representative of this product based on typical manufacturing experience. These data are provided for information only and are not certified by DuPont Dow Elastomers as a sales specification or product release criteria.

Engage® 8200 is packaged in 20 kg (44.1 lb) bags or 590 kg (1,300 lb) cartons (US material) or in 500 kg (1,102 lb) cartons (European material).

Engage® 8207 is available in railcar quantities, approximately 180,000 lb per car. U.S. shipments only.

### Typical Physical Properties

Comonomer Content, wt%	38
Melt Index, 190°C/2.16 kg, dg/min	5.0
Density, g/cm <sup>3</sup>	0.870
Mooney Viscosity, ML 1 + 4 at 121°C	8

Test Methods
Dow Method ( <sup>13</sup> C NMR/FTIR)
ASTM D-1238
ASTM D-792
ASTM D-1646

### Typical Molded Properties<sup>1</sup>

Ultimate Tensile Strength, MPa	6.9
Tensile Yield, MPa	2.1
Ultimate Tensile Elongation, %	1,030
Hardness, Shore A/D	75/21
Flexural Modulus, 2% Secant, MPa	12.1
Brittleness Temperature, °C	< -76

ASTM D-638, 508 mm/min
ASTM D-638, 508 mm/min
ASTM D-638, 508 mm/min
ASTM D-2240
ASTM D-790
ASTM D-746

### Typical Thermal Properties

DSC Melting Point, 10°C/min rate, °C	60
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DuPont Dow Method

<sup>1</sup>Compression molded Engage® 8200



# FLEXOMER DFDB-1085 NT

## Very Low Density Polyethylene Resin

- High elasticity with good elastic recovery
- Excellent impact strength in blends with polypropylene and polyethylene
- Soft touch blend

FLEXOMER™ DFDB-1085 NT Very Low Density Polyethylene (VLDPE) Resin is produced via gas phase polymerization from

Dow. This is an ethylene-butene copolymer exhibiting high flexibility and elasticity. It can be utilized in monolayer and

coextruded films and in blends with other polyolefins to enhance toughness of the structure.

Physical Properties	Test Method	Values <sup>(1)</sup> English (SI)
<b>Resin Properties</b>		
Melt Index (I <sub>2</sub> ), 190°C/2.16 kg, g/10 min	ASTM D 1238	0.85
Flow Rate (I <sub>21</sub> ), 190°C/21.60 kg, g/10 min	ASTM D 1238	26
Density, g/ cm <sup>3</sup>	ASTM D 792	0.8840
DSC Melting Peak, °F (°C)	Dow Method	237 (114)
DSC Glass Transition, °F (°C)	Dow Method	-62 (-52)
<b>Molded Plaque Properties<sup>(2)</sup></b>		
Hardness, Shore A, 1 sec / 5 sec	ASTM D 2240	79 / 79
Flexural Modulus, 2% Secant, psi (MPa)	ASTM D 790 A	4500 (31)
Tensile Strength at Break, psi (MPa)	ASTM D 638	600 (4)
Tensile Elongation at Break, %	ASTM D 638	375

- (1) Typical values, not to be construed as specifications. Users should confirm results by their own tests.  
 (2) Molded and tested in accordance with ASTM D4976.



# FLEXOMER DFDB-1088 NT

## Very Low Density Polyethylene Resin

- High elasticity with good elastic recovery
- Excellent impact strength in blends with polypropylene and polyethylene
- High melt strength
- Soft touch blend

FLEXOMER™ DFDB-1088 NT Very Low Density Polyethylene (VLDPE) Resin is produced via gas phase polymerization from

Dow. This is an ethylene-butene copolymer exhibiting high flexibility and elasticity. It can be utilized in monolayer and coextruded films and in

blends with other polyolefins to enhance melt strength and toughness of the structure.

Physical Properties	Test Method	Values <sup>(1)</sup> English (SI)
<b>Resin Properties</b>		
Melt Index (I <sub>2</sub> ), 190°C/2.16 kg, g/10 min	ASTM D 1238	0.1
Flow Rate (I <sub>21</sub> ), 190°C/21.60 kg, g/10 min	ASTM D 1238	4
Density, g/cm <sup>3</sup>	ASTM D 792	0.8840
DSC Melting Peak, °F (°C)	Dow Method	237 (114)
DSC Glass Transition, °F (°C)	Dow Method	-56 (-49)
<b>Molded Plaque Properties<sup>(2)</sup></b>		
Hardness, Shore A, 1 sec / 5 sec	ASTM D 2240	83 / 83
Flexural Modulus, 2% Secant, psi (MPa)	ASTM D 790 A	4800 (33)
Tensile Strength at Break, psi (MPa)	ASTM D 638	700 (5)
Tensile Elongation at Break, %	ASTM D 638	300

(1) Typical values, not to be construed as specifications. Users should confirm results by their own tests.

(2) Molded and tested in accordance with ASTM D4976.